Utrovački and Šatrovački: description and theoretical perspectives of two Serbo-Croatian language games

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The goal of this article is to present two Serbo-Croatian language games known as Šatrovački and Utrovački and to show how their functioning provides insight into the architecture of phonological representations. I show that Šatrovački calls for the existence of empty nuclei after word-final consonants, and that both Utrovački and Šatrovački militate against the syllable node as a syllabic constituant.

1. Introduction

The goal of this article is to present two Serbo-Croatian language games known as Šatrovački and Utrovački and to show how their functioning provides insight into the architecture of phonological representations.

In section 2 I start by giving a general presentation of language games: what are they ? why are they of any interest to phonology ? The first language game addressed in this paper is then introduced: Šatrovački. After having explained the general mechanism (section 3.1) and provided some illustration (section 3.2), I show why it calls for the existence of empty nuclei after word-final consonants (cf. section 3.5). Finally, the second language game is presented: Utrovački. After having introduced its basic mechanism (section 4.1), I show that it questions the validity of the syllabic node as a syllabic constituant (section 4.3). Hence the data at hand cannot be accounted for in a classical syllabic framework. After looking back at data from Šatrovački (section 5), I show how a shift in perspective may offer a solution (section 6).

2. Language games

2.1. What are they ?

Language games are alternate linguistic systems which are found in nearly every human language. They are characterized by a relatively restricted sociolinguistic function, a small speaker population and an uncertain acquisitional process. As concerns the morpho-phonological operations present in language games, they prove to be systematic and principle-governed and differ from ordinary languages in a quantitative way (number of operations) rather than in a qualitative way (type of mechanisms[1]). Thus language games, in other words, have 'mini-grammars' (*cf.* Mc Carthy 1986, Bagemihl 1995).

2.2. Why are they of interest ?

Speakers of language games consciously (or half-conciously) manipulate abstract units such as syllables when they turn a standard language input into the corresponding language game output. This confirms their access to more abstract levels of representation than the phonetic level (*cf.* Mc Carthy 1986). Moreover, language games guarantee the synchronic and immediate nature of morpho-phonological operations. Such data as opposed to 'ordinary' phonological data do not raise the classical problem of the lexical and diachronic status of the item under observation: here everything is the result of an online cognitive operation (at least when a speaker builds a word that he never heard before). This state of affairs, the online construction, is of great interest when one wants to evaluate the status of abstract objects such

[1] Among other mechanisms we do observe: reduplication, infixing/affixing, templatic activity and metathesis.

as the syllable: speakers manipulate abstract objects ; we can in return analyse their production and have a chance to observe what object was actually manipulated.

3. Šatrovački: description and exploitation

This section is dedicated to the description and theoritical exploitation of the first language game adressed in this paper, i.e. Šatrovački.

3.1. What is Šatrovački ?

Šatrovački is a Serbo-Croatian language game based on reversal and, therefore, close to French verlan (see among others Plénat 1992). We observe for those two languages:

(1) French verlan: mater [mate] *to stare at (slang)* > téma [tema], herbe [ɛʁb] *grass* > beuer [↕əɛʁ], cigarette [sigaʁɛt] *cigarette* > garetsi [gaʁɛtsi].

(2) Šatrovački: piće [pi͡tɕe] *drink* > ćepi [t͡ɕepi], jezivo [jezivo] *horrible* > zivoje [zivoje], hleb [xlɛb] *bread* > bəhle [bəxle].

A first glance at those data allows us to give an informal description of the Šatrovački mechanism: syllables are reversed. An input with the shape $C_1V_1C_2V_2$ will simply turn into an output $C_2V_2C_1V_1$. This is not something surprising in the typology of language games ; other languages, not genetically related to French and Serbo-Croatian such as Luganda (Niger-Congo) or Wolof (Niger-Congo)[2] show similar facts:

(3) Luganda: [kimuli] *flower* > [limuki], [mukono] *arm* > [nokomu], [mubinikolo] *chimney* > [lokonibimu]

(4) Wolof: [sama] *my* > [masa], [doom] *child* > [mədoo], [yobbu ko] *bring it* > [buko yoo]

All this clearly suggests that reversal is a type of a cross-linguisticaly present language game. This last point is of course of interest in a typological perspective. One wants to know if the mechanisms that are discovered for one language can be found in another language genetically related or not and thus be eligible for a universal status.

3.2. Šatrovački data: an overview

The data that are presented here come from field work with 'native' speakers of Šatrovački that I have conducted in summer 2004.[3] The corpus collected contains *194* words and is available as a whole in Rizzolo (2004). Šatrovački is mainly spoken in the area of Belgrade (Serbia).
There are three types of Serbo-Croatian inputs to be considered: mono-, bi- and trisyllabic.
The distribution in the corpus is the following: monosyllabic inputs: *23*, bisyllabic inputs: *152*, trisyllabic inputs: *19*.

[2] Data come from Roca (1994 : 11) and Kenstowicz (1994 : 447).
[3] Data were collected with the help of two Serbo-Croatian speakers. One of them is a thirty years old man who works as an engineer in Germany ; the other one is a twenty-eight years old woman who lives in France and who was trained as a linguist.

(5) Šatrovački: an overview

Šatrovački	standard Serbo-Croatian	*gloss*
	monosyllables	
bəhle	hleb	*bread*
cəvi	vic	*joke*
ftəli	lift	*lift*
kədžo	džok	*joint (slang)*
pəstri	strip	*comic strip*
səbu	bus	*bus*
təcve	cvet	*flower*
	bisyllables	
čema	mače	*kitten*
ćepi	piće	*drink*
ćevru	vruće	*hot*
divim	vidim	*I see*
fićka	kafić	*café*
fuka	kafa	*coffee*
šimpu	pušim	*I smoke*
	trisyllables	
čurkape	pečurka	*mushroom*
gareci	cigare	*cigarettes*
ravaku	kurava	*prostitute*
rijamu	murija	*police (slang)*
šenjepu	pušenje	*smoking*
tikepa	patike	*sneakers*
vanjedu	duvanje	*smoking (slang)*

Note on the spelling : c = [t͡s], ć = [t͡ɕ], dž = [d͡ʒ], č = [t͡ʃ], š = [ʃ], ž = [ʒ].

Table (5) shows that something (unexpected) is happening to monosyllabic inputs: their outputs systematically become bisyllabic. Nothing happens to bi- and trisyllabic inputs ; they simply remain bi- and trisyllabic. One would like to understand how and why monosyllabic items change in size.[4]

[4] What happens to monosyllabic inputs is, of course, only one of the different interesting points illustrated by Šatrovački. Among other things, some data suggest that there is an interaction between morphosyntactic principles and phonology. What we observe is the following: the quality of some final vowels is changing through reversal, [a] > [u] and [a] > [o], e.g. 'kafa' *coffee* > 'fuka', 'Mlađa' *Mladen* > 'Đomla'. A possible explanation, knowing that [-u] is the accusative marker for words ending in [-a] in the nominative form and [-o] is the vocative marker for words ending in [-a] in the nominative case, is that šatrovački outputs exhibiting an [u] were first used as an object and not as a subject when reversed and those exhibiting an [o] and which happen to be names (or hypocoristics) were first used in the vocative form when reversed.. Another set of data suggests that inflection and reversal interact: Sometimes inflection applies first then the term is reversed, e.g. 'priča-(ti)' *(to) speak* > 'priča-m' *I speak* > čampri, 'puši-(ti)' *(to) smoke* > 'puši-m' *I smoke* > 'šimpu'. Sometimes, the term is reversed then inflection applies, e.g. 'vide-(ti)' (*to) see* > 'divi' > 'divi-m' *I see*, 'bazdi-(ti)' *(to) stink* > 'zdiba' > 'zdiba-š' *you stink*. *Cf*. Rizzolo (2004) for more material.

3.3. Data: what happens to monosyllabic words ?

The following table shows all monosyllables contained in the corpus (20 items).[5]

(6) Monosyllabic words

Šatrovački	standard Serbo-Croatian	*gloss*
bəhle	hleb	*bread*
čəbe	Beč	*Vienna*
cəvi	vic	*joke*
dəgra	grad	*town*
dəle	led	*ice*
dəra	rad	*effect (slang)*
dəspi	spid	*speed (slang)*
ftəli	lift	*lift*
gəsne	sneg	*snow*
kədžo	džok	*joint (slang)*
kəzna	znak	*sign*
pədo	dop	*dope*
pəglu	glup	*stupid, adj.*
pəstri	strip	*comic strip*
pətri	trip	*trip (slang)*
səbu	bus	*bus*
səpa	pas	*dog*
təcve	cvet	*flower*
žəmu	muž	*husband*
žəno	nož	*knife*

Table (6) shows that the bisyllabic output of CVC items is always achieved through the appearance of a schwa, e.g. hleb *bread* > bəhle, lift *lift* > ftəli, cvet *flower* > təcve. What is particularly striking is the fact that the *inserted schwa does not belong to the phonemic inventory* of standard Serbo-Croatian. The question that naturally arises is where this schwa comes from and why it has been inserted.

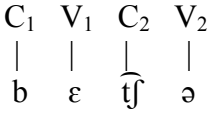
3.4. Schwa insertion: different candidate analyses

Schwa insertion may be thought of in different ways. For example, a lexicalist position may be adopted: monosyllabic words that end with a consonant on the surface underlyingly end

[5] The corpus contains 23 monosyllabic items altogether. Three are missing hereafter 'smor' *boredom (slang)*, 'stvar' *thing* and 'džoint' *joint* (slang) because they are not directly relevant for the purpose of the following discussion. The items 'smor' and 'stvar', when reversed do not display a schwa, i.e. we do not observe 'rəsmo' and 'rəstva' but 'rsmo' and 'rstva' with a syllabic [r]. I show in Rizzolo (2004) that, far from being counter-examples, these two items are in fact evidence for the analysis that is about to be developed in section 3.5. The item 'džoint' being the only one in the whole corpus displaying a glide, 'džoint' [d͡ʒɔjnt] has a specific treatment: its output [jintd͡ʒɔ] displays an [i] epenthesis (*Cf.* Rizzolo 2004 for an analysis).

with a schwa. In such a perspective, a word like Beč [bɛt͡ʃ] *Vienna* would have the following representation :

(7) Beč /bɛt͡ʃə/ [bɛt͡ʃ]



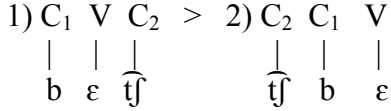
The final schwa would only be pronounced when its presence is required, i.e. during the reversal process. Thus we would observe:

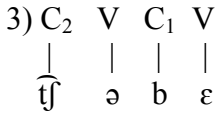
(8) A lexicalist solution: schwa is underlyingly present after word-final consonants.

Under (8) schwa is underlyingly present in the S-C input but not pronounced since not required. When the item is reversed the presence of schwa is required: the schwa surfaces to break up initial consonant clusters such as **#čb*, **#dg* or **#pd*, which are systematically produced by reversal, i.e. $C_1VC_2 > C_2C_1V$. Indeed, if schwa was not pronounced the result of reversal for an input such as Beč [bɛt͡ʃ] would be *[t͡ʃbɛ]. The initial cluster resulting from the reversal, e.g. *#[t͡ʃb] does not exist in Serbo-Croatian and may thus be assumed to be impossible. Thus the schwa being already available underlyingly simply becomes audible to avoid the creation of clusters which are ruled out in S-C.
However this solution is rather unlikely since schwa cannot be present in the lexicon: it does not exist as a S-C phoneme. It would be strange indeed to propose an underlying schwa for the sole purpose of giving an account for 20 words.
This hypothesis being disqualified there is another proposal to examine: the epenthetic solution. One might suppose that the schwa observed in the Šatrovački forms represents an epenthesis of syllabic material (a slot) and melody. In such an approach the schwa would be inserted, again, to break up initial consonant clusters such as **#čb*, **#dg* or **#pd*, which are systematically produced by reversal, i.e. $C_1VC_2 > C_2C_1V$. This solution is illustrated under (9):

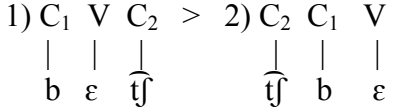
(9) Epenthetic solution: schwa is inserted after reversal to break up illicit initial consonant clusters resulting from this process

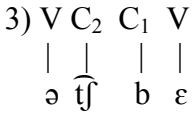
a) schwa is inserted between C_2 et C_1
/bɛt͡ʃ/> */t͡ʃbɛ/ > [t͡ʃəbɛ]





b) schwa is inserted before C_2
/bɛt͡ʃ/> */t͡ʃbɛ/ > [ət͡ʃbɛ]





Under (9) are depicted the two possible ways for a schwa epenthesis. Let us consider the first one. The reversal of the item Beč [bɛt͡ʃ] with the shape C_1VC_2 gives birth to the output *[t͡ʃbɛ]. The initial cluster resulting from the reversal, e.g. *#[t͡ʃb] does not exist in Serbo-Croatian. In order to break up this illicit cluster there's an epenthesis of the vowel schwa between the consonants C_2 and C_1. The output is then [t͡ʃəbɛ], the attested one. In the second case the strategy applied is similar ; the only difference lies in the place of the epenthesis: this time schwa settles before C_2 and C_1. The resulting output [ət͡ʃbɛ] has done away with the illicit cluster as well and does not violate any constraint of S-C. However it is simply not attested. This double possibility for the realisation of schwa is the main drawback of the epenthetic solution: it fails to account for the fact that the insertion always occurs in the same location. In other words this approach cannot predict that the result of reversal for monosyllabic items will always have the shape $C_2əC_1V_1$ as in Beč > čəbe and never $əC_2C_1V_1$as in the non-attested Beč > *əčbe.

Still we can look further into the epenthetic direction and try to accommodate this hypothesis in a way that it can fully predict the location of schwa insertion. Doing so leads us to associate this approach to a typological reasoning of the kind that OT embodies in the constraints ONSET and NOCODA: CVCV is way more unmarked than VCCV since, unlike VCCV which violates both constraints, it does not incur a violation of either constraint.

In this case, the representation under (9) b) would be simply excluded by the two mentioned constraints.

The OT-based epenthetic approach seems to be a good candidate. Serbo-Croatian has indeed restrictions on initial consonant clusters: *#dg or *# čb for example do not occur and may thus be assumed to be ill-formed. Šatrovački also has restrictions on initial clusters: they are systematically broken up. If schwa were not inserted, we would observe, among others, the following monster clusters: *bhl, čb, dgr, dsp, ftl, gsn, kdž, kzn, pgl, pstr, ptr*. These are absolutely ruled out in S-C. Clearly the upgraded epenthetic approach looks like an ideal candidate: it explains how the schwa is inserted and can predict for sure where it is inserted. Moreover this solution gives an answer to the question why a schwa is inserted: in order to break up illicit initial clusters resulting from reversal.

But if all this is true and if this approach is the right one, how to explain that perfectly licit Serbo-Croatian clusters such as, #sp, #cv, #dr, e.g. sposoban *capable*, spasiti *to save*, spor *slow*, cvekla *beetroot* cvileti *to moan*, cvet *flower*, drag *dear*, drama *drama*, dremati *to nap* are also broken up in Šatrovački: pas *dog* > səpa, *spa, vic *joke* > cəvi,*cvi, rad *work* > dəra, *dra. Therefore, I conclude that the reason for schwa insertion is not to be sought in constraints on initial clusters. Thus the epenthetic approach can therefore not be the correct solution to the problem.

3.5. Schwa insertion: the FEN solution

We have seen that the lexical and epenthetic hypotheses are not able to solve the problem at stake here.

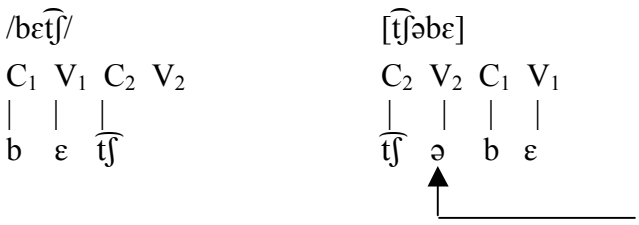
I claim that the solution lies in the acknowledgement of final empty nuclei (FEN). Among other voices, Government Phonology (e.g. Kaye 1990) holds that consonant-final words actually end in an empty nucleus.[6] This nucleus can remain mute when occurring in word-final position, it is licensed to do so.[7] But once it finds itself in a morpheme-internal situation

[6] Ouside of Government Phonology, Dell (1995) and Oostendorp (2002) for example work with final empty nuclei.

[7] This is a parameter: some languages do license FEN, some others do not. Languages which display final codas do license FEN ; languages without final codas do not. *Cf.* Kaye (1990) for questions related to this topic.

it cannot remain mute gratuitously, it has to be taken care of: in the case at hand, through the vocalization of the empty nucleus.

(10) The FEN solution



Under (10), the nucleus V_2 can remain mute since it is final and thus licensed to do so. But after reversal this nucleus is now internal and must be expressed.Thus the schwa observed on the surface in Šatrovački is nothing but the spell-out of the lexical final empty nucleus, which has been moved from a final to an internal location.This way there's no need to call on markedness considerations to account for the fact that schwa is realized always in the same location: the FEN hypothesis accounts for that. Moreover, following this proposal allows to unveil the mysterious choice of schwa, i.e. a phoneme which is not present in the phonemic inventory of S-C in extensio: Kaye (1990: 313) proposes that an empty nucleus, when segmentally expressed, is realized as schwa.[8] Clearly this proposal is the ideal candidate: no extra material (epenthesis) is needed, no extra constraint (OT upgrade) is needed and the choice of schwa finds a natural explanation.

3.6. The FEN solution, yes but...

The FEN solution seems to be the correct way to explain the mechanism at stake here, i.e. to account for the presence of schwa in an unchanging position. Still, the compulsory expression of the empty nucleus in *morpheme-internal situation* may not be the real reason for the appearance of schwa.

When we consider the whole corpus, the distribution of S-C inputs according to the number of syllables is somehow striking. There is an overwhelming majority of bisyllabic inputs: 152 out of 194. Šatrovački, which is based on the reversal of syllables, therefore seems best designed for inputs with two syllables: '*we need to be (at least) two in order to play*'. Monosyllabic inputs clearly have just one syllable ; they are not big enough. If those items want to have a chance to become good candidates for reversal, they have to increase in size in order to satisfy the minimal size constraint. This noticeable size problem is nothing but a wrong problem since the FEN hypothesis holds that monosyllabic items are bisyllabic underlyingly.

In conclusion, everything is the same, the FEN hypothesis still holds true. The difference lies in the fact that the motivation for the vocalization of the empty nucleus is not anymore its morpheme-internal position but a constraint on the minimal size of a Šatrovački output. In other words, minimal size is the trigger and FEN are the means.

Moreover, I said above that an empty nucleus in internal position has to be taken care of and that this is achieved through vocalization. Giving a segmental expression to an empty nucleus is not the only way to take care of it in a morpheme-internal empty nucleus: it can be properly

[8] The author proposes that the unmarked realization of an empty nucleus is a high schwa, i.e. [ɨ]. The mid schwa observed here is nothing but a coloured version of the latter.

governed by a following nucleus.[9] In table (10) the empty nucleus V_2 in a morpheme-internal position could be properly governed by the following nucleus V_1. Thus it could remain mute. This implies that the FEN solution, without the minimal size argument, would not help solving the problem. Minimal size is the key to the vocalization of the empty site.

4. Utrovački

4.1. What is Utrovački ?

Let us now turn to Utrovački.
We have seen the way Šatrovački works and how some data of this language game are a strong argument for the existence of FEN. Let us now consider the second ludling to be presented in this paper, e.g. *Utrovački.*
Utrovački is based on moving and inserting syllables, e.g. words like 'radio' [radjo] *radio*, 'kobila' [kobila] *mare*, 'sunce' [sunt͡se] *sun* turn into *udio za ranje*, *ubila za konje*, *unce za sunje*.[10]
The following informal description can be given for this process: substitute [u] for the first syllable, add 'za' [za] *for* at the end of the word, then add the first syllable and attach to it the [-nje] suffix, e.g: *ko*bila > *u*bila > ubila *za* > ubila za *konje*.

4.2. Utrovački data: an overview

The data presented here come from a work with "native" speakers of Utrovački conducted in April 2005 by a Serbo-Croatian native speaker. 116 entries have been collected. As for Šatrovački, this language game is mainly spoken in Belgrade.
There are five types of Serbo-Croatian inputs to be considered: mono-, bi-, trisyllabic and inputs with four and five syllables.
The distribution is the following: monosyllabic inputs: *19*, bissyllabic inputs: *55,* trisyllabic inputs: *37*, inputs with four syllables: *4*, inputs with five syllables: *1*.

(11) Utrovački: an overview

Utrovački	standard Serbo-Croatian	*gloss*
	monosyllables	
ur za smonje	smor	*boredom (slang)*
uv za krnje	krv	*blood*
urt za sponje	sport	*sport*
un za slonje	slon	*elephant*
ud za granje	grad	*town*
	bisyllables	
urta za kanje	karta	*ticket*
urba za bonje	borba	*fight*
uvo za pinje	pivo	*beer*
unka za crnje	crnka	*brunette*
urka za svinje	svirka	*concert (slang)*
	trisyllables	
utike za panje	patike	*sneakers*

[9] *Cf.* among others, Kaye, Lowenstamm & Vergnaud (1990), Kaye (1990), Scheer (2004) for questions related to Government Phonology.
[10] The way outputs are represented, i.e. with graphic blanks, is nothing but my own decision to make them more easily parsable.

Utrovački	standard Serbo-Croatian	*gloss*
ulica za minje	Milica	*Milica*
undale za sanje	sandale	*sandals*
unktura za tinje	tinktura	*tincture*
urkoman	narkoman	*drug addict*
	four syllables	
untalone za panje	pantalone	*trousers*
ukadžija za drnje	drkadžija	*asshole*
cuskinja za frnje/franje	Francuskinja	*Frenchwoman*
udijator za ranje	radijator	*radiator*
	five syllables	
ubalebaroš za džanje	džabalebaroš	*parasite (slang)*

4.3. What is actually moved ?

Even a quick look at table (11) clearly shows that whatever the size of the input (1, 2, 3, 4 or 5 syllables), the unit that is manipulated in this language game is not a syllable in its classical acception. Let us have a closer look:

(12) What is moved

a) Monosyllables: smor > ur za smonje => *moved* [smo]
b) Bisyllables: svirka > urka za svinje, pivo > uvo za pinje => *moved* [svi], [pi]
c) Trisyllables: sandale > undale za sanje, Milica > ulica za minje => *moved* [sa], [mi]
d) Four syllables: pantalone >untalone za panje, radijator > udijator za ranje => *moved* [pa], [ra]
e) Five syllables: džabalebaroš > ubalebaroš za džanje => *moved* [dža]

If we had a look at the sole words ‘pivo’, ‘Milica’, ‘radijator’ and ‘džabalebaroš’ we could conclude that the object that was moved is the (first) syllable. For example when ‘pivo’ turns into ‘uvo za pinje’, ‘pi’ represents for sure the first syllable of the item ‘pivo’. The same holds true for the other three examples mentioned. But if we have a look at all the examples listed under (12) and consider the words ‘smor’, ‘svirka’, sandale’ and ‘pantalone’ then we cannot conclude that the object that is moved is the first syllable of the S-C input. If this were the case we would observe for those words the following (unattested) outputs:

(13) If the syllable was moved (what would be the first syllable in familiar theories is italicized)

a) *smor* > *u za smornje, ur za smonje
b) *svir*ka > *uka za svirnje, urka za svinje
c) *san*dale > *udale za sanje, undale za sanje
d) *pan*talone > *utalone za panje, untalone za panje

Clearly, as shown by the examples under (13), moving the first syllable, i.e. an onset plus a rhyme, leads to a wrong result. Doing so for an input like ‘svirka’ which is constituted of two syllables ‘svir’ and ‘ka’ and whose first syllable contains a complex onset ‘sv’ and a complex rhyme ‘ir’ where ‘i’ is the nucleus and ‘r’ the coda would derive the unattested output ‘*uka za svirnje’ when the attested output is ‘urka za svinje’.

Moving the whole syllable leads to the wrong result. Which unit when moved does then lead to the right result ? Let us have a closer look at the data and try to answer this question. When this is done it appears that each time, whatever the shape of the first syllable, either CV or CVC, the only material that is moved is an Onset/Nucleus pair. This implies that the coda of the first syllable, in other words an internal coda, is never moved. One wants to know why it is so.

4.4. Why do not we move a syllable ?

This question may at first sound somehow trivial or unmotivated. One could ask in the same way 'why would we move a syllable ?'. But the point is that there are reasons to be puzzled by such a state of affairs. First, the syllable is the constituant one refers to when one wants to describe casual phonological processes such as stress assignment, vocalic quantity or say ATRity. This same constituant was reintroduced in the phonological theories in the seventies because major processes (part of them the ones mentioned) could not receive a natural description. Thus the syllable gained the status of a privileged phonological site and this common view still prevails today. In other words, the syllable is a fundamental tool of the phonological gear. How could phonological operations in a S-C language game suggest that the acclaimed syllable is not a patented actor ? Second it seems that Šatrovački does manipulate syllables (*cf.* below, section 5) and so do French verlan and different other language games. In this direction Blevins (1995) writes: 'Laycock's (1972) survey of language games notes at least twenty cases where *the syllable is the target* of affixation, truncation, substitution or movement'. So the question raised above is not that unmotivated: we naturaly expect the syllable to be the object moved in Utrovački. Clearly here the target is not a proper syllable but a syllable without its coda. Since in classical syllabic frameworks the coda is dominated by the rhyme and the rhyme is itself dominated by the syllable node, it should not be possible to move only the onset and the nucleus, to the exclusion of the coda. Thus if we are supporters of a classical syllabic theory we want to understand what can be the reason for this breaking of the rhyme in Utrovački. On the following pages I try to shed light on this question.

4.5. Is there a semantic motivation behind the phonological process ?

Can semantics influence phonology ? We already know that syntax can (e.g. French liaison). But semantics ? Let us investigate into this direction.
The interesting point with Utrovački, as opposed to Šatrovački, is the fact that there often is a *new semantic reading* coming with the newborn output. For example, a word like 'kobila' *mare* turns into 'ubila za konje' with the new reading *(she) killed for horses*. It thus could be the case that semantics have priority over phonology in this language game and therefore dictates the shape of the object that is going to be moved. In other words it would be more important to create a new meaning rather than to manipulate a 'proper' unit, the syllable. If we take an input like 'koska' *bone* and turn it into an Utrovački output moving a (full) syllable the result would be 'uka za kosnje' with no new meaning. Making the same input go through the filter and moving this time the syllable without its coda leads to the output 'uska za konje' with the new reading *(she is) narrow for horses*. It is self-evident with this last example that the quality of the object moved plays a great role on the semantic side in Utrovački ; it may therefore be supposed that semantics drive the choice of a degenarated syllable. Let us check the validity of such a hypothesis. First we should see how many outputs with a new semantic reading are present in the corpus. This is what table (14) displays:

(14) New semantic readings ('za' is a preposition always meaning *for*):

Serbo-Croatian	Utrovački	new semantic reading
'kobila' *mare*	'ubila za konje'	'ubila' *killed (she)*, 'konje' *horses => she killed for horses*
'brazilka' *Brazilian woman*	'uzilka za branje'	'branje' *harvest*
'drugar' *friend*	'ugar za dranje'	'dranje' *flaying* ; *the one who flays you*
'dobro' *good*	'ubro za donje'	'donje' *lower part = sexual organs*
'Dubrovnik' *Dubrovnik*	'ubrovnik za dunje'	'dunje' *quince*
'grom' *thunder*	'um za gronje'	'um' *spirit*
'zdravo' *hi*	'uvo za dranje'	'uvo' *ear ;* 'dranje' *flaying*
'drvo' *tree*	'uvo za drnje'	'uvo' *ear*
'mama' *mom*	'uma za manje'	'manje' *less*
'pivo' *beer*	'uvo za pinje'	'uvo' *ear*
'trava' *grass*	'uvo za tranje'	'uvo' *ear*
'crnka' *brunette*	'unka za crnje'	'crnje' *more black*
'krst' *cross*	'ust za krnje'	'krnje' *chipped*
'mast' *fat*	'ust za manje'	'manje' *less*
'prst' *finger*	'ust za prnje'	'prnje' *rags*
'grad' *town*	'ud za granje'	'ud' *penis* ; 'granje' *branches => a penis for branches*
'krpelj' *tick*	'upelj za krnje'	'krnje' *chipped*
'crkva' *church*	'ukva za crnje'	'crnje' *more black*
'šibica' *safety match*	'ubica za šinje'	'ubica' *murderer*
'cuši' *girl (slang)*	'uši za cunje'	'uši' *ears*
'Milica' *Milica*	'ulica za minje'	'ulica' *street*
'koska' *bone*	'uska za konje'	'uska' *narrow* ; 'konje' *horses => (she is) narrow for horses*

Out of 116 items, there are 22 outputs with a new semantic reading (i.e. 19%). This is not insignificant. But is this quantity enough in terms of statistics ? Can the semantic sake of one output out of five be a reason sufficient enough for influencing phonology ? Probably not. Yet there is another point to be taken into account: the proportion of inputs with an internal coda. Out of 22 inputs leading to a new semantic reading, 3 have an internal coda which represents 2.6% of the whole corpus. Clearly this is too small a quantity to be able to induce a regular phonological behaviour. Therefore we can safely conclude that the semantic motivation does not qualify for an explanation.[11]

The semantic track didn't prove to be valid. As a consequence, a supporter of the classical syllabic theory is left again without explanation for the non-syllable based behaviour of Utrovački. In order to make some progress, it will prove useful to look back at Šatrovački. This is the purpose of the next section.

[11] Still, when speakers are tested they say things like 'choose a noun starting with a 'ko' it makes funny things'. So there obviously is a consciousness of new semantic readings linked with the fact of moving units ; there is a connection between semantics and phonology but not in a causal manner.

5. A look back at Šatrovački

When I have presented Šatrovački I have said that an informal description of this language game can be: syllables are reversed. And indeed, a look back at table (5) shows that nothing refutes this statement. But a closer look at the same table reveals that there are no inputs with an internal coda.[12] Thus it could simply be the case that a crucial part of information is lacking: we simply do not know how inputs with an internal coda behave.

I must admit, at this point, that the data under (5) are incomplete, on purpose, for exposition reasons: items with an internal coda are not displayed. Still such items do exist: out of 152 bisyllabic inputs 36 display an internal coda.[13] Will this coda move with the syllable or not ?

The general shape of bisyllabic inputs with an internal coda is $C_1VC_2.C_3V$ with C_2 being a coda (no increasing sonority from C_2 to C_3). If the syllable is manipulated by Šatrovački we would expect the outputs to have the shape $C_3V.C_1VC_2$. This is never the case. What we always observe is $C_2C_3V.C_1V$, e.g. a word like 'mečka' *Mercedes (slang)* gives 'čkame' and never '*kameč'. Some of the outputs illustrating this are listed under (15):

(15) Bisyllabic inputs with an internal coda

Serbo-Croatian	Šatrovački	*gloss*
mečka	čkame	*Mercedes (slang)*
pička	čkapi	*vagina (slang)*
hladno	dnohla	*cold*
piksla	kslapi	*ashtray (slang)*
lopta	ptalo	*ball*
fotke	tkefo	*photos (slang)*
Slavko	Vkosla	*Slavko*
govno	vnogo	*turd*

The illustrations given in this table speak by themselves: an internal coda is never moved. Furthermore, what is particularly striking indeed is that some of the initial consonant clusters resulting from the reversal do not exist at all, do not exist anymore in synchrony or are scarcely attested in S-C.

This last point is depicted below:

(16) Resulting clusters

a) the cluster doesn't exist: *#ksl, 'piksla' *ashtray* > 'kslapi' ; *#vk 'Slavko' *Slavko* > 'vkosla'

b) the cluster doesn't exist anymore in synchrony: *#vn, 'govno' *turd* > 'vnogo' ('unutra' *inside* < 'vnutra')

c) the cluster is scarcely[14] attested: #tk, 'fotke' *pictures (slang)* > 'tkefo' (e.g. 'tkanje' *weaving*) ; #pt 'lopta' *ball* > 'ptalo' (e.g. 'ptica' *bird*) ; #dn 'hladno' *cold* > 'dnohla' (e.g. 'dno' *bottom*)

d) the cluster is frequent in S-C: #šk, 'peškir' *towel* > 'škirpe' (e.g. 'škola' school) ; #zn, 'krzno' *fur* > 'znokr' (e.g. 'znoj' *sweat*)...

[12] There is one: 'pečurka'. But the coda is in the wrong place: we would need it in the first syllable since this syllable and no other is going to move (*cf*. Rizzolo 2004 for an explanation).

[13] Trisyllables don't display an internal coda in the first syllable (*cf*. the preceding footnote for the relevance of this fact).

[14] 'scarcely' means that there are few roots (roughly less than five) displaying such an initial cluster.

Hence Šatrovački does not manipulate syllables. Moreover the choice of Onset/Nucleus pairs leads to the creation of unusual or unattested initial clusters. Through the glasses of somebody evolving in a classical syllabic framework it seems impossible to explain how it could be. We will see in the next section that there is a way to understand why the syllable is not the relevant object if we put on different glasses.

6. Towards a solution: a look through different glasses

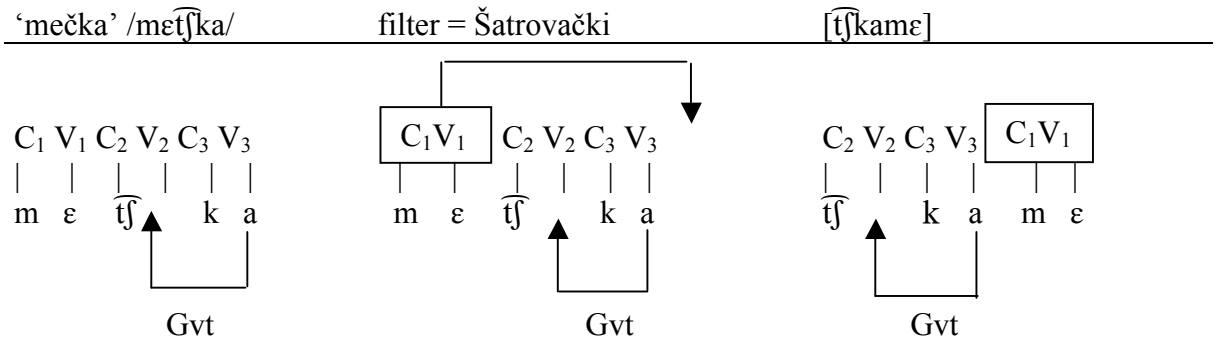
Utrovački exclusively manipulates Onset/Nucleus pairs, not full syllables, and so does Šatrovački. This is so, even if the result of the reversal operation gives birth to unusual or unattested initial clusters.

Finding a solution maybe requires to change the point of view: the validity of the syllable as a constituant must be questionned. Indeed the data show that a coda is never moved with its nucleus. This fact suggests that neither the syllable, nor the rhyme nor the coda qualify as syllabic constituants. This state of affairs is precisely inherent in a theory called CVCV (Lowenstamm 1996, Scheer 2004, Szigetvári 2001, among others). In this framework, the only constituants are non-branching onsets and non-branching nuclei which strictly alternate. As a consequence, the syllabic arborescence does not exist anymore. Thus, in such theories the coda is not a constituant anymore[15] and the minimal unit is an Onset/Nucleus pair. It is worth noting that the syllabic generalizations that were expressed in an arboreal framework are not lost at any rate in the CVCV theory. Simply, the mechanism that allows describing what a coda, a branching onset, a long vowel or a closed syllable are is different: the arboreal functionality is henceforth expressed in terms of lateral relationships which are embodied by two main forces known as government and licensing.[16]

When examined through these new glasses the data presented here lose their exceptional character: there's nothing more natural than moving an Onset/Nucleus pair when this unit is postulated to be the minimal building block. In other words the question 'why don't we move syllables ?' receives a somehow natural answer: because the syllable is not the minimal unit, (it cannot be since) it is not a proper constituant.

With these new glasses, the reversal of an input such as 'mečka' *Mercedes (slang)* will be described as follows:

(17) 'mečka' *Mercedes (slang)* > 'čkame' with the CVCV glasses



[15] At least in structural terms. There is a formal apparatus to identify what classically refers to the coda.

[16] *Cf.* Scheer (2004) for questions related to this topic.

Under (17) the Onset/Nucleus pair C_1 V_1 is the minimal building block. This is the unit which is manipulated by Šatrovački/ Utrovački speakers. The nucleus V_2 is empty and therefore has to be taken care of: this is achieved through government from the following full nucleus V_3.

7. In conclusion

The goal of this paper was twofold: 1) to present two Serbo-Croatian language games, 2) to show how their functioning provides an insight into the architecture of phonological representations.

As concerns the first aspect, i.e. the descriptive one, we have witnessed the basic functioning of two ludlings: one based on syllable reversing, Šatrovački and another one based on moving and inserting syllables, Utrovački.

As concerns the theoretical part of this paper, two major points were made: 1) data from Šatrovački are good evidence for the existence of Final Empty Nuclei, 2) both Šatrovački and Utrovački suggest that the classical conception of the phonological architecture with its arboreal constituancy is not adequate. Looking through classical glasses does not help explaining why the unit manipulated by two language games is not the syllable. However putting on new glasses and examining the same data through a different filter shows that the data at hand are not surprising. The theory known as CVCV (Lowenstamm 1996, Scheer 2004, Szigetvári 2001, among others) predicts that the syllable is not a valid constituant and that the minimal unit is an Onset/Nucleus pair – exactly what is moved by the two language games examined.

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